600V CU EPR PAIRS CPE POS Instrumentation

Type TC-ER Instrumentation Cable 600 Volt Tinned Copper Conductors EPR Insulated Single Pairs with Overall Shield POS. CPE Jacket Heat, Moisture, Oil and Sunlight Resistant. Rated for -30°C to 90°C



Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** Class B stranded tinned copper per ASTM B3 and B33
2. **Insulation:** Twisted pair with Premium Grade Flame-retardant Ethylene Propylene Rubber FR-EPR Black/White alpha-numeric print alternate and inverted. 1-ONE, 2-TWO
3. **Overall Drain Wire:** Tinned Copper sized two AWG sizes smaller than pair size. For #18 awg pair: Drain is 20 awg. For #16 awg pair: Drain is 18 awg.
4. **Overall Shielded:** 100% coverage aluminum/polyester foil shield with a drain wire as shown in step 5
5. **Rip Cord:** Rip cord under jacket for ease of removal
6. **Jacket:** Black sunlight, oil and moisture resistant thermoplastic Chlorinated Polyethylene CPE jacket

APPLICATIONS AND FEATURES:

Southwire's Instrumentation Cables Type TC-ER per UL 1277 are suitable for installations as outlined in NEC Article 336 for process control and instrumentation, control circuits for operation and interconnection of protective and signaling devices and for general use in manufacturing, industrial and commercial distribution systems. Cables are constructed with 7-strand tinned copper conductors insulated with Ethylene Propylene Rubber EPR. The paired conductors are colored black, white, and alpha-numeric printed. The overall assembly is covered with an aluminum polyester foil with 100% coverage and a tinned drain wire. The cable is suited for use in cable trays, raceways, conduit, aerial (when supported with a messenger) and direct burial. The cable is rated for -30°C to 90°C wet or dry and rated for Class I Div II hazardous locations, sun and oil resistant. The jacket is black Chlorinated Polyethylene CPE with a rip cord for easy removal. 1 Pair is not TC-ER Rated.

SPECIFICATIONS:

- ASTM B33 Standard Specification for Tin-Coated Soft or Annealed Copper Wire
- UL 44 Thermoset-Insulated Wires and Cables
- UL 1277 Electrical Power and Control Tray Cables
- UL 1685 Vertical-Tray Fire Propagation and Smoke Release Test
- ICEA S-73-532 Control, Thermocouple Extension, and Instrumentation Cables (applicable to sizes 20-9 AWG conductors)
- IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test
- EPA 40 CFR, Part 26, Subpart C heavy metals per Table 1, TCLP method

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SAMPLE PRINT LEGEND:

SOUTHWIRE® XX AWG XX PAIRS EPR/CPE TYPE TC-ER E-FILE (UL) 600V 90°C WET/DRY SUN AND OIL RESI DIRECT BURIAL FT4/IEEE 1202 SEQUENTIAL MARKING

Table 1 – Weights and Measurements

Stock Number	Cond. Size	Number of Pairs	Diameter Over Conductor	Insul. Thickness	Jacket Thickness	Approx. OD	Approx. Weight	Min Bending Radius	DC Resistance @ 25°C
	AWG/ Kcmil	pair	inch	mil	mil	inch	lb/1000ft	inch	Ω/1000ft
592128	18	1	0.045	30	45	0.309	46	1.8	6.669
TBA	18	2	0.045	30	45	0.463	75	2.7	6.669
TBA	18	4	0.045	30	60	0.57	134	3.4	6.669
677058	18	5	0.045	30	60	0.715	178	4.2	6.669
TBA	18	8	0.045	30	60	0.734	224	4.4	6.669
631377	18	12	0.045	30	80	0.941	377	5.6	6.669
592115	16	1	0.056	30	45	0.333	57	1.9	4.181
TBA	16	2	0.056	30	45	0.501	94	3	4.181
TBA	16	3	0.056	30	60	0.578	191	3.5	4.181
598542	16	4	0.056	30	60	0.589	177	3.5	4.181
TBA	16	8	0.056	30	60	0.796	290	4.7	4.181

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
† 1 Pair is not TC-ER Rated.
TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.

Table 2 – Weights and Measurements (Metric)

Stock Number	Cond. Size	Number of Pairs	Diameter Over Conductor	Insul. Thickness	Jacket Thickness	Approx. OD	Approx. Weight	Min Bending Radius	DC Resistance @ 25°C
	AWG/ Kcmil	pair	inch	mm	mm	mm	lb/km	mm	Ω/km
592128	18	1	0.045	0.76	1.14	7.85	68	45.72	21.88
TBA	18	2	0.045	0.76	1.14	11.76	112	68.58	21.88
TBA	18	4	0.045	0.76	1.52	14.48	199	86.36	21.88
677058	18	5	0.045	0.76	1.52	18.16	265	106.68	21.88
TBA	18	8	0.045	0.76	1.52	18.64	333	111.76	21.88
631377	18	12	0.045	0.76	2.03	23.90	561	142.24	21.88
592115	16	1	0.056	0.76	1.14	8.46	85	48.26	13.72
TBA	16	2	0.056	0.76	1.14	12.73	140	76.20	13.72
TBA	16	3	0.056	0.76	1.52	14.68	284	88.90	13.72
598542	16	4	0.056	0.76	1.52	14.96	263	88.90	13.72
TBA	16	8	0.056	0.76	1.52	20.22	432	119.38	13.72

Typical Electrical Specifications for Each Pair

Size AWG	Capacitance pF/ft	Inductance µH/ft
18	40.66	0.0957
16	48.51	0.0895

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